WE CLAIM:

1. A method of generating a rule set utilized for automatically applying optical proximity correction techniques to a reticle design containing a plurality of features, said method comprising the steps of:

generating a first set of rules for applying scatter bar assist features to said plurality of features for a given illumination setting;

generating a second set of rules for applying biasing to said plurality of features for said given illumination setting; and

forming a look-up table containing said first set of rules and said second set of rules.

2. The method of generating a rule set utilized for automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 1, wherein said step of generating said first set of rules comprises the steps of:

defining a set of illumination settings to be utilized to image said reticle;

performing an optical simulation of a plurality of lines having different pitches based on said set of illumination settings;

determining the optimal position of said scatter bars relative to said plurality of lines so as to optimize the imaging of said plurality of lines for said illumination settings; and

recording said optimal position of said scatter bars.

3. The method of generating a rule set utilized for automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 1, wherein said step of generating said second set of rules comprises the steps of:

generating a test reticle containing a set of selected test structures and a resist;

imaging said test reticle on a substrate utilizing said illumination settings and an imaging system to be utilized to image said reticle;

measuring the critical dimensions of said set of selected test structures imaged on said substrate;

generating a model representing the printing performance of said imaging system and said resist based on the difference between the set of selected test structures and the imaged set of selected test structures; and

utilizing said model to define said second set of rules for applying biasing to said plurality of features.

4. The method of generating a rule set utilized for automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 3, wherein a biasing requirement is defined for each of a plurality of distinct feature pitch intervals based on said model.

5. The method of generating a rule set utilized for automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 2, wherein a scatter bar requirement is defined for each of a plurality of distinct feature pitch intervals.

6. The method of generating a rule set utilized for automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to

claim 4, wherein placement of a scatter bar within a given pitch interval is considered when defining the biasing requirement for the given pitch interval.

7. The method of generating a rule set utilized for automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 1, further comprising generating a third set of rules for applying line end correct to said plurality of features.

8. A method of automatically applying optical proximity correction techniques to a reticle design containing a plurality of features, said method comprising the steps of:

generating a first set of rules for applying scatter bar assist features to said plurality of features;

generating a second set of rules for applying biasing to said plurality of features;

forming a look-up table containing said first set of rules and said second set of rules; and

analyzing each of said plurality of features with said first set of rules and said second set of rules contained in said look-up table to determine if either said first set of rules or said second set of rules is applicable to a given feature;

wherein, if either said first set of rules or said second set of rules is applicable to said given feature, said given feature is modified in accordance with the applicable rule.

9. The method of automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 8, wherein said step of generating said first set of rules comprises the steps of:

defining a set of illumination settings to be utilized to image said reticle;

performing an optical simulation of a plurality of lines having different pitches based on said set of illumination settings;

determining the optimal position of said scatter bars relative to said plurality of lines so as to optimize the imaging of said plurality of lines for said illumination settings; and

recording said optimal position of said scatter bars.

10. The method of automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 8, wherein said step of generating said second set of rules comprises the steps of:

generating a test reticle containing a set of selected test structures and a resist;

imaging said test reticle on a substrate utilizing said illumination settings and an imaging system to be utilized to image said reticle;

measuring the critical dimensions of said set of selected test structures imaged on said substrate;

generating a model representing the printing performance of said imaging system and said resist based on the difference between the set of selected test structures and the imaged set of selected test structures; and

utilizing said model to define said second set of rules for applying biasing to said plurality of features.

11. The method of automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 10, wherein a biasing

requirement is defined for each of a plurality of distinct feature pitch intervals based on said model.

12. The method of automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 9, wherein a scatter bar requirement is defined for each of a plurality of distinct feature pitch intervals.

13. The method of automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 11, wherein placement of a scatter bar within a given pitch interval is considered when defining the biasing requirement for the given pitch interval.

14. The method of automatically applying optical proximity correction techniques to a reticle design containing a plurality of features according to claim 8, further comprising generating a third set of rules for applying line end correct to said plurality of features.

15. A computer program product for controlling a computer comprising a recording medium readable by the computer, means recorded on the recording medium for directing the computer to generate a rule set utilized for automatically applying optical proximity correction techniques to a reticle design containing a plurality of features, said generation of said rule set comprising the steps of:

generating a first set of rules for applying scatter bar assist features to said plurality of features for a given illumination setting;

generating a second set of rules for applying biasing to said plurality of features for a given illumination setting; and

forming a look-up table containing said first set of rules and said second set of rules.

16. The computer program product according to claim 15, wherein said step of generating said first set of rules comprises the steps of:

defining a set of illumination settings to be utilized to image said reticle;

performing an optical simulation of a plurality of lines having different pitches based on said set of illumination settings;

determining the optimal position of said scatter bars relative to said plurality of lines so as to optimize the imaging of said plurality of lines for said illumination settings; and

recording said optimal position of said scatter bars.

17. The computer program product according to claim 15, wherein said step of generating said second set of rules comprises the steps of:

generating a test reticle containing a set of selected test structures and a resist;

imaging said test reticle on a substrate utilizing said illumination settings and an imaging system to be utilized to image said reticle;

measuring the critical dimensions of said set of selected test structures imaged on said substrate;

generating a model representing the printing performance of said imaging system and said resist based on the difference between the set of selected test structures and the imaged set of selected test structures; and

utilizing said model to define said second set of rules for applying biasing to said plurality of features.

18. The computer program product according to claim 17, wherein a biasing requirement is defined for each of a plurality of distinct feature pitch intervals based on said model.

19. The computer program product according to claim 16, wherein a scatter bar requirement is defined for each of a plurality of distinct feature pitch intervals.

20. The computer program product according to claim 18, wherein placement of a scatter bar within a given pitch interval is considered when defining the biasing requirement for the given pitch interval.

21. A device manufacturing method comprising the steps of:

(a) providing a substrate that is at least partially covered by a layer of radiation-sensitive material;

(b) providing a projection beam of radiation using an imaging system;

(c) using a pattern on a mask to endow the projection beam with a pattern in its cross-section;

(d) projecting the patterned beam of radiation onto a target portion of the layer of radiation-sensitive material,

wherein, in step (c), said mask is formed by a method comprising the steps of:

generating a first set of rules for applying scatter bar assist features to said plurality of features for a given illumination setting;

generating a second set of rules for applying biasing to said plurality of features for said given illumination setting;

forming a look-up table containing said first set of rules and said second set of rules; and

analyzing each of said plurality of features with said first set of rules and said second set of rules contained in said look-up table to determine if either said first set of rules or said second set of rules is applicable to a given feature;

wherein, if either said first set of rules or said second set of rules is applicable to said given feature, said given feature is modified in accordance with the applicable rule.